



# Threat and Vulnerability Brief for the Food and Agriculture Sector

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Weapons of Mass Destruction  
SA James J. Page Jr.



# Overview

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- Agroterrorism Background
- Food Threat
- Agriculture Threat
- Information Availability
- Recent Cases
- Interdependency
- Who Represents the Threat
- Moving Forward





# Definition of Agroterrorism

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The deliberate introduction, use, or threatened use, of a **chemical, biological, radiological, nuclear, or explosive agent** against one or more components of the food or agriculture sectors, with the goal of causing mortality and morbidity, generating fear, precipitating economic loss, or undermining sector stability and confidence in government





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We assess agroterrorism to be  
**LOW risk, HIGH impact threat**

No imminent threat to the US Food and  
Agriculture sector





# Threat Overview

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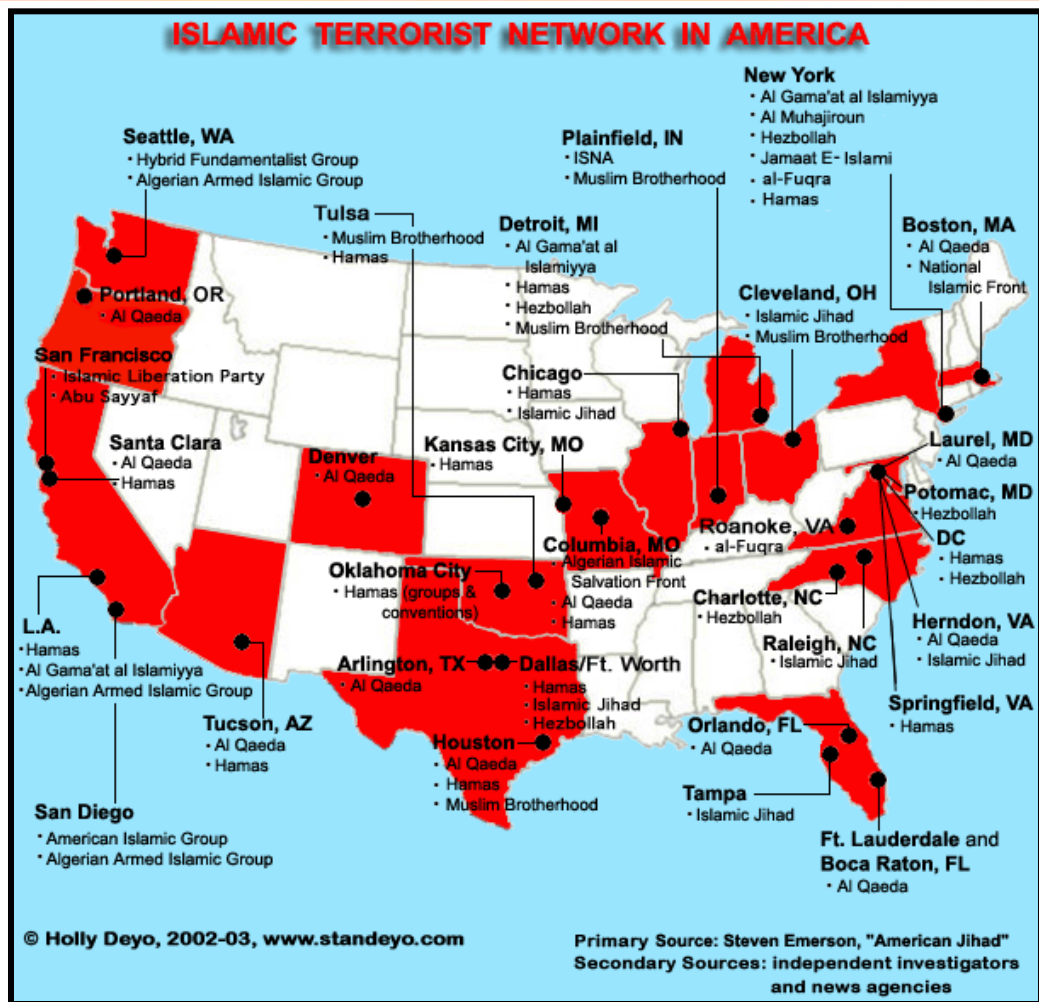
- Many threats are vague and non-specific, lacking:
  - Targets
  - Method/delivery routes
  - Contaminant
- Threats lack sophistication
  - Portray ineffective tactics
  - No indication of technical skill or knowledge of systems
- Limited actionable intelligence
  - Hampers investigation, analysis





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# Islamic Terrorist Network





# Threat May Grow

- Terrorists have acknowledged the economic effects
- Many foreign animal diseases are endemic to regions where terrorists are known to be
- Low cost, little technical expertise required to acquire/produce agents
- Agents are easy to disseminate, no need to weaponize
- Recent food incidents may inspire attacks
- Food and agriculture are soft targets
- May be less morally objectionable than attacking people for some actors

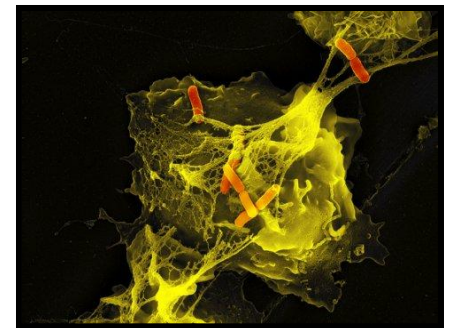






# Why Target Food/Ag

- Difficult to distinguish deliberate, accidental or natural outbreak – whether food, animal, or plant
  - Plausible deniability
- Relatively easy to access and transport pathogen
  - Small amount of animal virus can have huge affect
- Animal pathogens infectious and transmissible
  - Potential for a single animal to start epidemic
  - Multiple outbreak scenario







# Why Target Food/Ag

- Method of Introduction
  - Overt vs. covert
  - Multiple methods of delivery, insertion
  - Simultaneous introduction multiple areas
- Indicators of an Attack
  - Difficult to attribute outbreak to attack
    - Could be accidental – e.g. travelers, illegal smuggling of imports
  - Unusual location/season for outbreak?
  - Animals traced to common sale barn, etc?
  - Multiple small outbreaks in different areas?
  - Very high mortality?

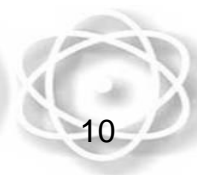




# Why Target Food/Ag

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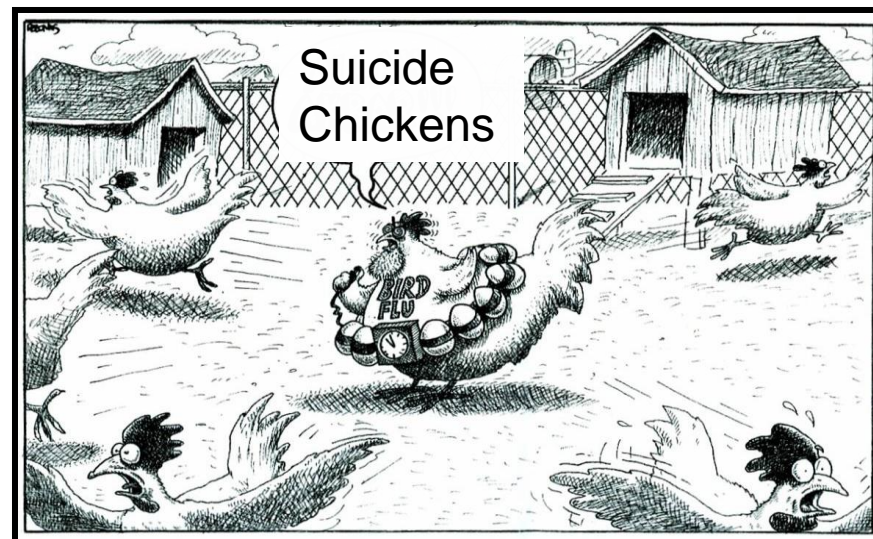
- Widespread publicity highlighting vulnerability, economic and potential political impacts
- Availability and exploitation of open scientific information relating to acquisition and production of agents
  - Provide framework and shorten time for capability development
- Contaminating Food has tremendous public health consequences
  - Short turnaround time, short shelf-life
  - Distribution is nationwide and rapid





# From Farm to Fork

- Livestock
- Crops
- Farm workers
- Livestock producers
- Import Facilities
- Food and agriculture transportation systems
- Food processing facilities
- Food storage/distribution facilities
- Restaurants, grocery stores, markets





# Food Supply as Target

- Large number of people can be affected by a small amount of a food-borne agent
  - Vulnerable facilities
  - Central food services
  - Dining halls
  - Mess tents
  - Self-service food stations, including salad bars
  - Large fast-food chains
  - School cafeterias
  - Food processing facilities
  - Food storage/distribution facilities







# Why It's High Impact

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- Economic effects
  - Export restrictions, lost markets
  - Direct costs – treatment, prophylaxis, decontamination, depopulation
  - Lost revenues, productivity, wages
  - Processing, transportation, distribution, marketing, tourism, etc.
  - Disrupted supply lines
- Targeting food supply results in
  - Fear, panic, decreased faith in government
- Concentration
  - Regionally and on farms





# Mad Cow Disease

- US Mad Cow Disease - 23 December 2003
  - First US case, only one cow
- Affected meat plants in Texas, Nebraska, Kansas and Colorado
  - More than half of beef cattle revenues each year
  - Meat had been sent to food and commercial processors before disease was detected
- Export
  - Export bans – South Korea four years later (23 April 2007) resumed importation of US beef
  - Exports to 4 countries (over 90% of US exported beef) dropped from \$3 billion (2003) to \$467 million





# Foot And Mouth Disease

- United Kingdom FMD Outbreak - 2001
  - Cost estimated at \$15 billion
    - \$4.5 billion for slaughter compensation, disposal & cleanup
    - 4 million cows & sheep culled
      - 1.3 million at infected farms
      - 2.5 million at 8,000 other premises (killed to control disease spread)

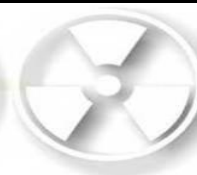






# Exotic Newcastle Disease

- First detected 1 October 2002 in backyard chickens in Los Angeles and adjacent county
  - Over 300,000 premises surveyed, 19,058 quarantined
  - California imposed statewide exhibition ban
  - 3.5 million commercial birds destroyed
  - Nearly 150,000 pet/hobby birds destroyed
  - 30 countries banned imports of California poultry and poultry feed
- Costs
  - \$160 million – direct response costs
  - \$167 million – US trade losses
  - \$27 million – Loss due to eggs not laid
  - \$17 million – Feed sales losses
  - \$3.5 million – Poultry labor wages





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# Disposal



Source: California Dept. of Food and Agriculture briefing at September 2006 ISA





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# From Food to Agriculture

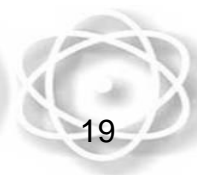
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# Plant Targets

- Food crops
  - Corn, wheat, soybean, citrus, sugarcane
- Fiber
  - Cotton
  - Pulp & wood products
- Hundreds of foreign pathogens are a potential threat to US agriculture
- Plant diseases common in South East Asia and Middle East pose threat to US crops







# Crop Variables

- Successful use of anti-crop agents depends on many factors:
  - Hardiness of agent
  - Amount of agent applied
  - Method of application
  - Availability of agent
- Spread of plant pathogens is highly dependent upon variables/meteorological conditions:
  - Season
  - Temperature
  - Precipitation
  - Wind
  - Growth phase of the plants





# Where to Find Information

**The Original VOL. 1**  
**The Poor Man's JAMES BOND** Kurt Saxon

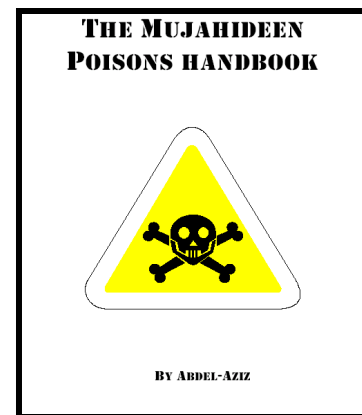
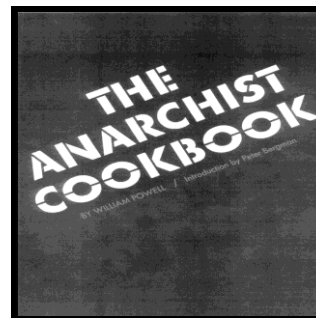
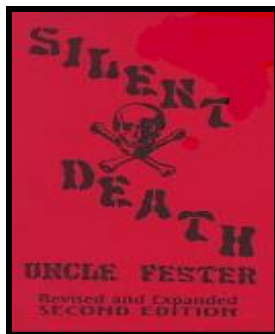
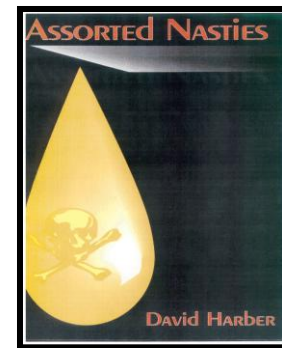

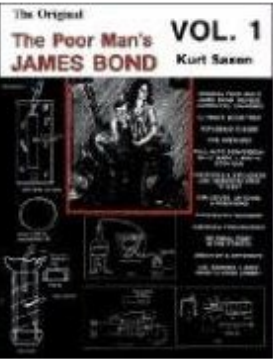
**The Poor Man's James Bond (#C-065)**  
~ [Kurt Saxon](#) ☒ (Author)  
★★★★☆ ☒ ([17 customer reviews](#))

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# The Nighttime Gardener

- Open Source Document
  - Found on the internet
  - Can be ordered in hard copy
- Contains 6 sections
  - Evening Attire
  - Gardener's Toolbox
  - Best Time to Go
  - How to Spot Your Crop
  - What to do When You Get There
  - What You Will Be Gardening



## The Best Time To Go

The best gardening time for the shy gardener is obviously at night. And at the new moon is better than when it is full. You have two main choices: early a.m. is quite dead, but remember how long the job will take, starting earlier in the evening will give you more of an excuse to be out and about.

## Evening Attire for The Nighttime Gardener

It is worth bearing in mind that when it's raining hard it will wash away most traces and provide visual and audio cover. You'll often get drenched from the dew alone. It is a good idea to scout your site of interest at many different times throughout the day/night to get a clear idea of what the scene is like.

An all-night recon is a really good idea to make sure the garden is right for you. There may be cameras at university test sites/greenhouses or biotech corporation labs/sites/greenhouses. For the main part, these cameras serve to deter potential "gardeners," and instill a healthy sense of paranoia. Paranoia, Nah! Those who are careful stay free!

## How To Spot Your Crop

Firstly, the timing of your harvest is important if you want to actually sabotage their research and cause economic damage. Too early could let them replant, and too late could harvest their crop for escaping through the plant's seeds before the seeds are fully grown. A whole plant from the field would be to bag up some on your local USDA or State

Ag. Dept.'s doorstep

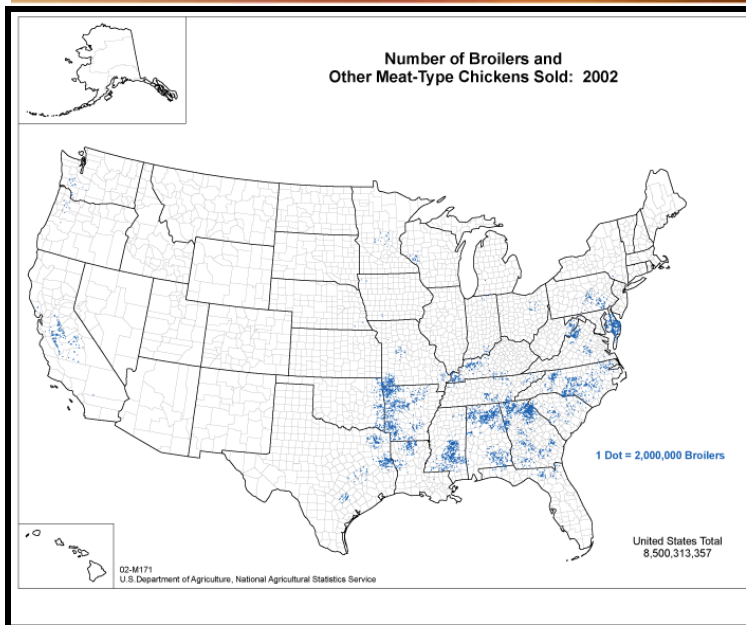
## What To Do When You Get There





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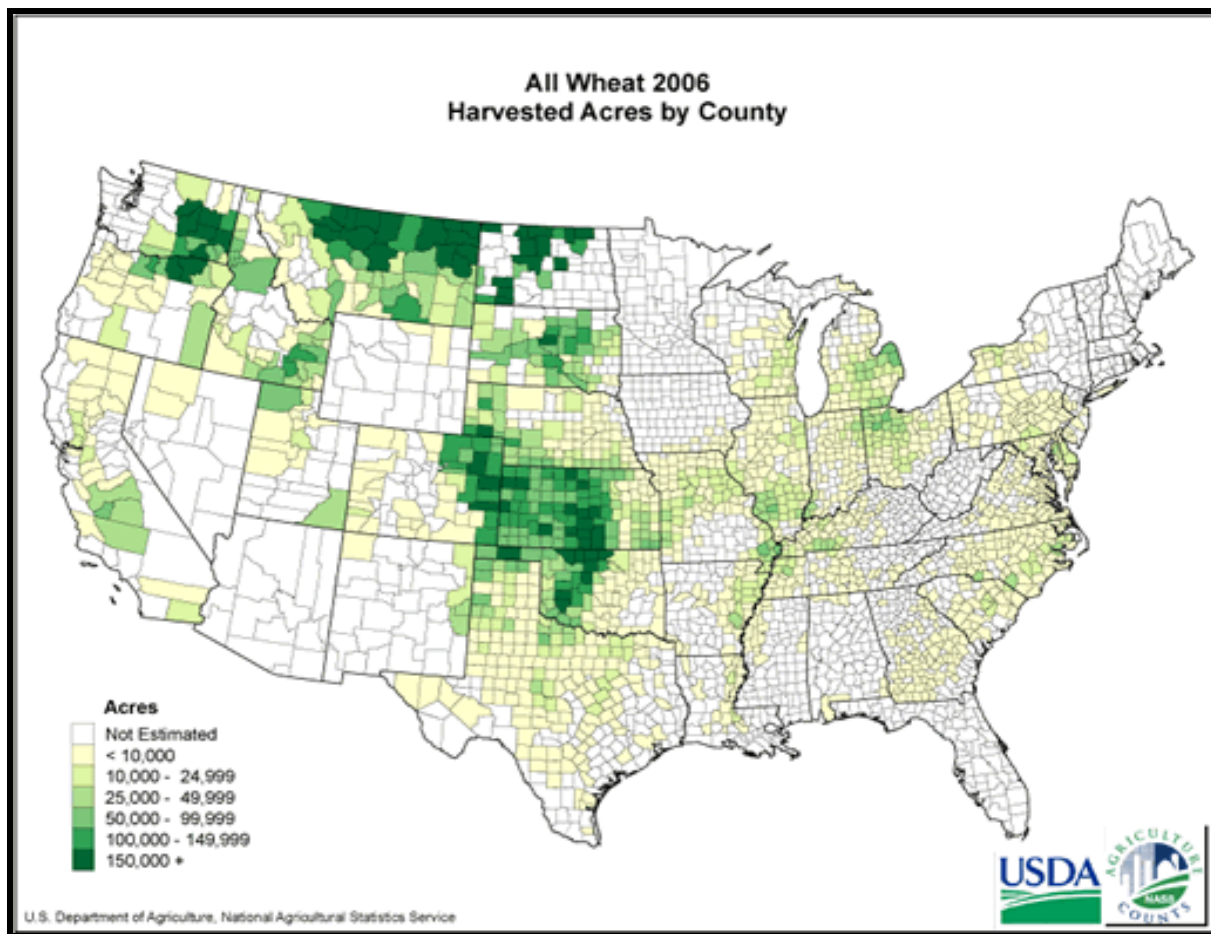
# Animal Concentration





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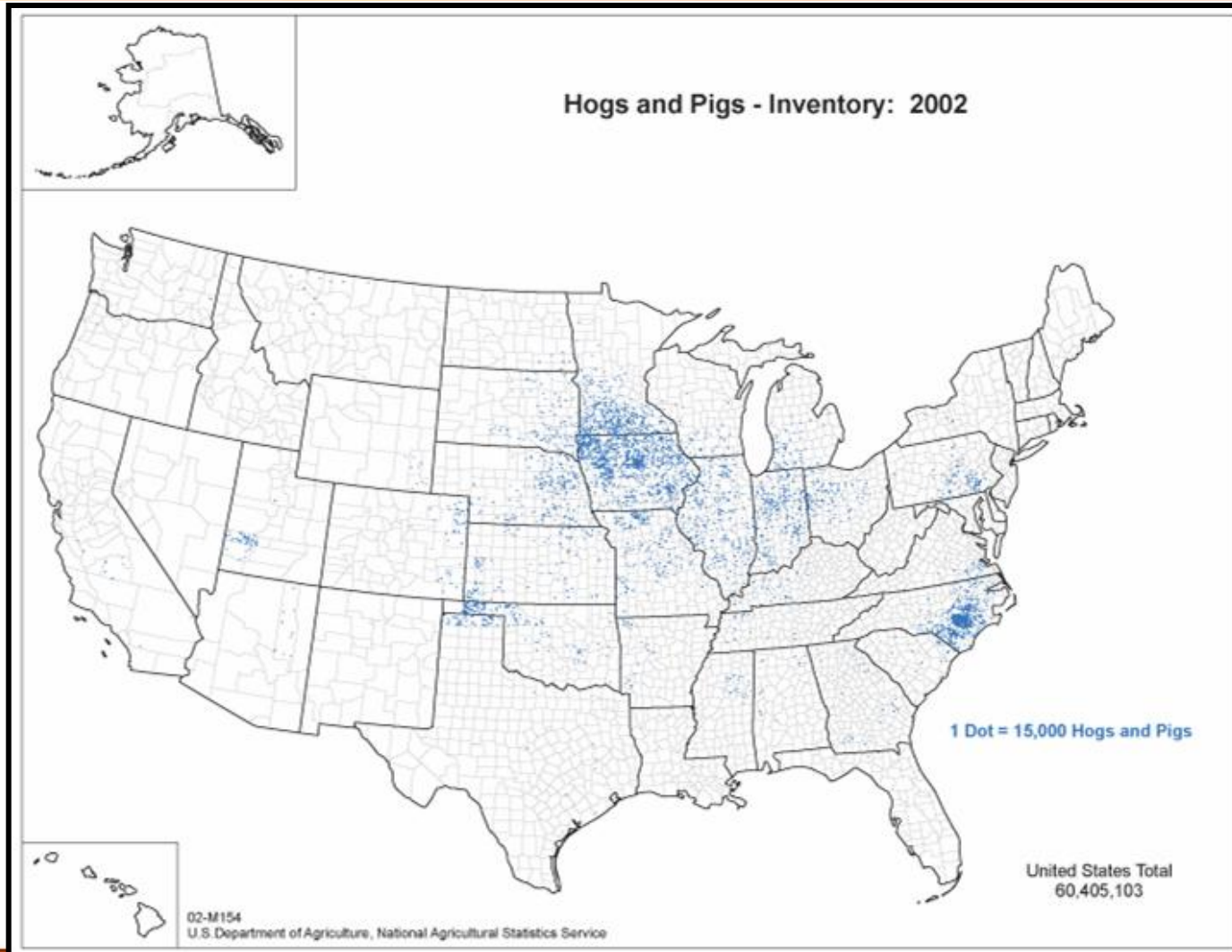
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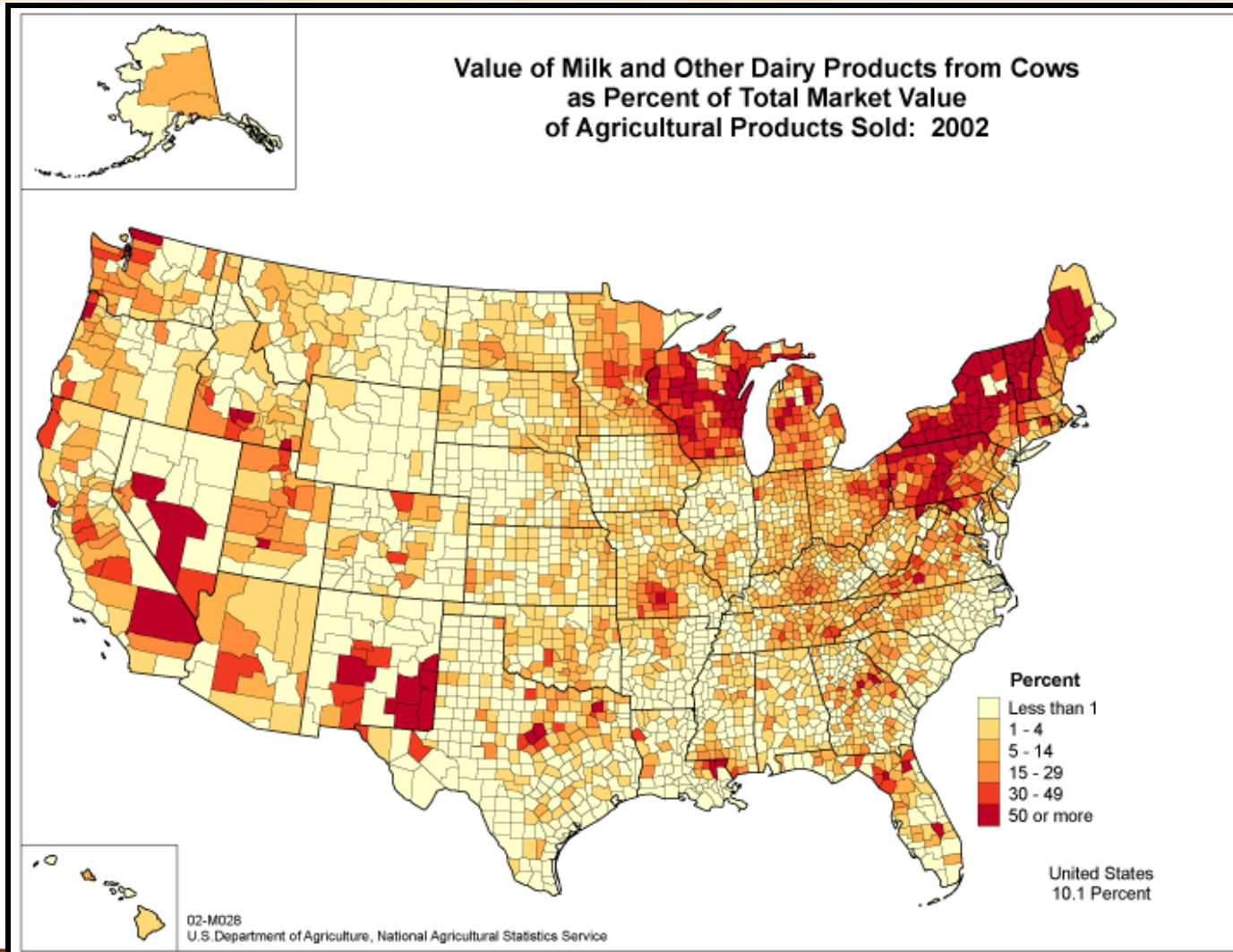
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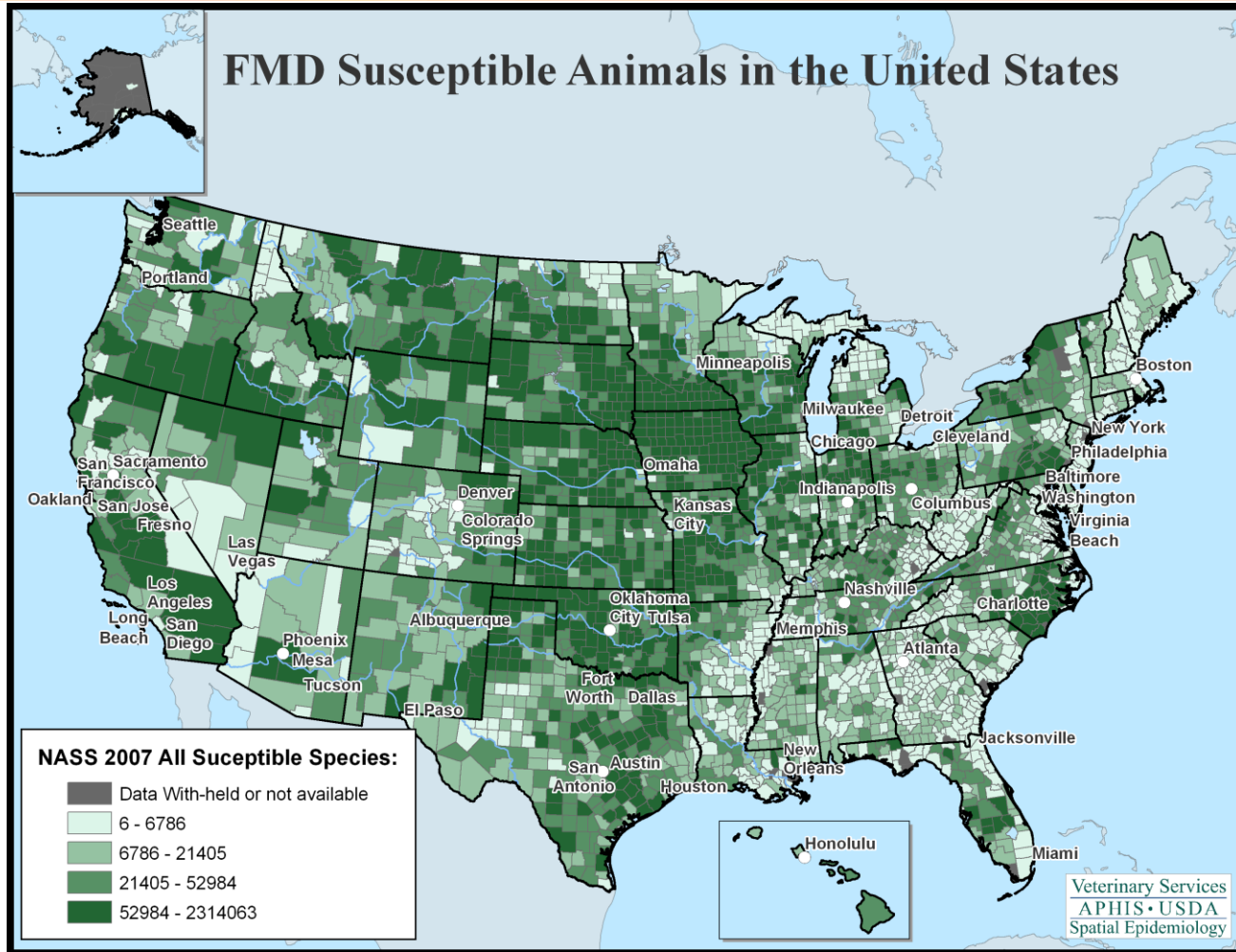






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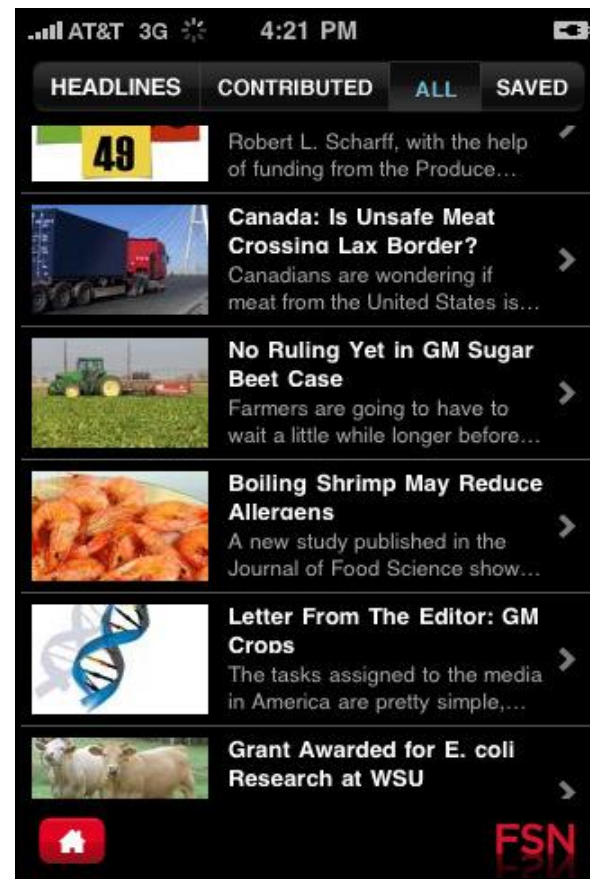
# FMD Susceptibility





# Where to Find Information

- Food Safety News
  - iPhone Application
  - Released March 2010
- News Reporting
  - Food issues
  - Food poisoning outbreaks
  - Articles by food safety experts
  - Recalls





# Webcams

- Near real time information about the target
  - Could be used to track populace to ensure maximum casualties
  - Watch the movement of security officers and law enforcement
- Times Square attempted bombing
  - Information indicated they used webcams







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# Food/Ag Cases

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Brief sample of cases involving the contamination of food or agriculture products





# Restaurant Targeted

- Oregon, 1984
  - Bagwan Shree Rajneesh cult
  - 751 people ill
  - Salmonella typhimurium
  - Intentional
  - Salad bar in at least 8 restaurants
  - Not attributed to terrorism until much later after a cult member confessed
- More recently
  - In June 2005 Islamic Web site posting warned Muslims to avoid restaurants in Iraq frequented by Americans because of a food poisoning plot.
  - April 2008- Two Palestinians arrested only days before planning to poison diners at the restaurant where they worked in Israel.





# 2006 Spinach Contamination

- Sept. 8th – Wisconsin notified CDC of Escherichia coli O157:H7 illness cluster
- Sept. 15th - FDA issued consumer advisory not to eat fresh spinach due to possible E. coli O157:H7 contamination
- 205 confirmed illnesses and 3 deaths 26 states
  - Spinach processed/packaged by CA plant
  - Contamination traced back to spinach fields, but no definitive source of contamination identified to date
- Estimate \$74 million loss to spinach growers
- Brought culture change to industry's irrigation practices
  - Many CA growers now voluntarily have routine “surveillance” samples analyzed prior to distribution





# Sample of Food Cases

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- Muffins – May 2006 – Texas
  - 19 people became ill after eating muffins left in the school's teacher's lounge
- Grape Juice – February 2006 - Connecticut
  - Over 40 people sickened after drinking juice at a church, no deaths, 5 hospitalized
- Baked goods – July 2005 – Texas
  - Subject confessed to flicking fecal matter on bread and other products in food store
- Baby food – May & June 2004 – California
  - Parents of two babies found threatening notes in bottom of baby food jars saying they were contaminated with ricin
  - Neither baby became ill, but jars contained ricin, ricinine and rinoleic acid – indicators they contained ground castor beans





# Salsa Poisoning

- August 2009 – Lenexa, Kansas
  - Yini De La Torre, 19
  - Employee at Mi Ranchito restaurant
- Details
  - During lunch hour on two separate occasions she added Methomyl-based pesticide to salsa
  - In total 48 patrons became sick
- Reasoning
  - She believed management was responsible for husband being suspended from job
  - Theft of his vehicle





# Fort Jackson Poison Plot

- February 2010
  - Allegations that four or five soldiers were trying to poison the food supply
  - Involved “potential verbal threats”
- Individuals were training to be translators and interpreters
- Findings:
  - No credible evidence to support the allegations







# Poisoned Soup

- March 2010 – United Kingdom
  - Kitchen worker at a private school poisoned soup with diesel
- Details
  - Staff raised alarm after noticing the food had a chemical smell
  - Stopped before it was ingested
  - Soup was ditched right away when another member smelled it







# Vegetables Poisoned

- July 2010, Australia
- 4 million tomato seedlings were poisoned
- Herbicide was injected into the irrigation system at a nursery
  - 4<sup>th</sup> incident in eight years
  - Some of the plants had already been transplanted on farms
- Estimated \$20.3 million in damage
- Prices likely to spike

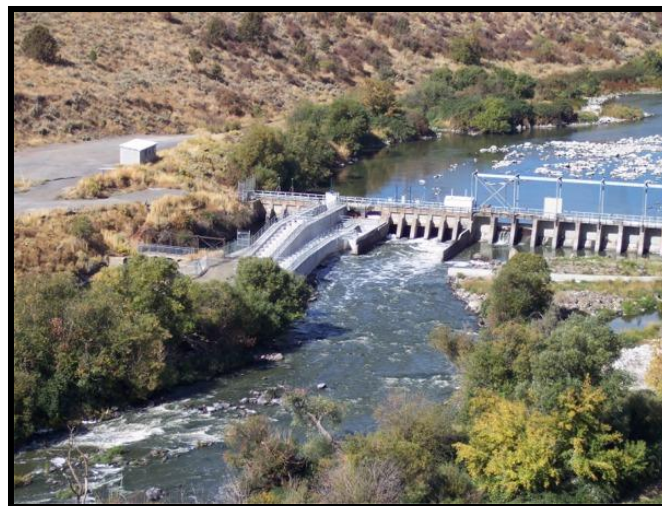




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# Interdependency

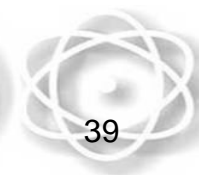
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# Water Dependency

- Water not only is key to growing crops, but enormous amounts are used in raising livestock, moving goods, and processing food
- A threat to the available supply of clean, uncontaminated water could have severe impact on the industry
- Water is used for:
  - Crop irrigation
  - Ice to keep certain produce items cool
  - Manufacturing food at processing facilities
  - Moving produce in flumes in processing facilities
  - Misting produce items in refrigerated distribution facilities to keep them cool





# New Orleans/Hurricane Katrina

- New Orleans is a major gateway for imports/exports
  - Oil imports
  - Corn, soybean, wheat and rice exports
- Katrina halted the flow of agriculture trade
  - Falling commodity prices in interior states
  - Competition for barge traffic on Mississippi
- Estimated \$2 billion loss for farmers unable to ship their goods by barge





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# Who Represent the Threat

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- International
- Domestic
- Animal/Environmental Groups







# International Terrorists

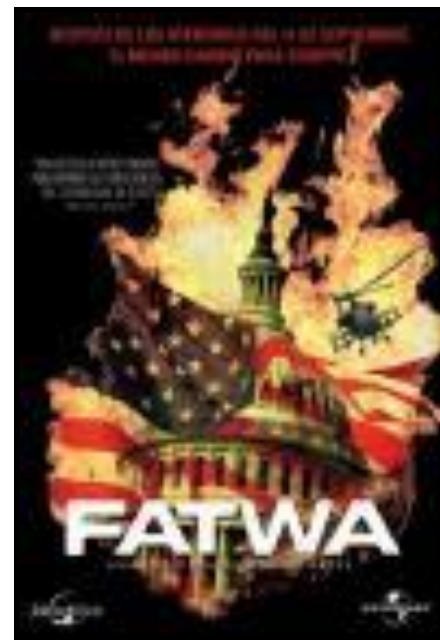
- December 2003:
  - "Mad cow disease cost the United States \$27 billion"
  - "This disease or viruses, could easily be transported to the United States."
- Al-Qa'ida's goal of weakening the US economy could be achieved through several biological attacks:
  - "an agricultural disease, a cattle disease, a poultry disease, and an epidemic disease."





# Fatwa Issued in 2003

- “A letter (message) of judgment in the use of weapons of mass destruction against the infidels”
- “Theologians . . . legalized the use of germ warfare . . . They also legalized **poisoning the enemies’ water sources**. . . . their **livestock should be killed**. . . .”
- “If it is proven by specialized militants that the infidels will not be expelled [from the lands of Muslims] without the **use of weapons of mass destruction**, it becomes completely legal to use such weapons to expel such forces . . . . and **destroy cultivated land**.”





# Documents Recovered

B.W.

intentionally use of living org. or their toxic products in order to cause death/disability/damage to man, animals, plants

B.W. agents classified as:

1. Microorganisms
2. Toxins
3. Vectors of diseases.
4. Animal/Plant Pests.

B.W. agents are:

1. Antipersonnel
2. Anti food. (Animal/Crops)

Route of Entry into the Body

1. Respiratory / Aerosol.
2. Oral → contaminated food/water
3. Percutaneous → Insect Vectors  
Fleas  
Ticks  
Mosquitoes

Factors Affecting the EFFECTIVENESS

1. Sun light
2. Humidity
3. Air pollution
4. Temperature
5. Wind speed.
6. Atmospheric conditions
7. Time





# Documents Recovered

ANTI PERSONNEL				
Disease	Microorg.	Time, Days, Effect	Death %	Mode of Dissemination
PLAGUE	<i>Pasteurella pestis</i>	3-4	30-100	Aerosol
Anthrax	<i>B. anthracis</i>	1-4	95-100	Aerosol
Glanders	<i>Actinobacillus mallei</i>		10-80	Water
Cholera	<i>Vibrio comma</i>			Aerosol
Tularemia	<i>Francisella tularensis</i>	2-5	0-60	Tick/Mammals
Psittacosis	<i>C. psittaci</i>		10-100	

Anti Animals  
Foot-Mouth Disease  
Rinderpest Cattle plague  
Newcastle  
Hog cholera  
Fowl plague  
Aspergillosis

ANTI PLANTS  
Rice Blast  
Maize Rust  
Black stem Rust of cereals.  
Rice blight  
Coen blight

## Antipersonnel Agents

ability to deliver viable, virulent org. on a susceptible target.

Are not necessarily Lethal to obtain Military objectives that incapacitate without causing Death.

## Anti Food Agents

used against Crops / animals resulting serious shortage of Medicinal plants, Leather, Wool

Has long term strategic application.





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# Moving Forward







# Technology

- Food contamination agents could be cultured and scaled up using simple technology
- Dual-Use Technology
  - Low-tech adequate
  - Relatively inexpensive
  - Difficult to track – many legitimate uses
- Pathogens for humans and animals conceivably could be obtained from veterinary and vaccine production facilities worldwide





# Possible Indicators

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- Detection of pre-planning: surveillance of facility, site penetration attempts, internet searches, dumpster diving
- Unexplained thefts of product, uniforms, badges
- Unusual interest in processes not within scope of employment
- Odd delivery requests
- Social engineering
- Unusual acquisition of scientific cultures, materials or organisms (theft or purchase)
- Attempts to infiltrate food sector through employment or recruitment





# Collaboration

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- Encourage exchange of information and possible collaborative CT projects with international trading partners
- Sharing threat information between IC/LE and food agencies leads to increased coordination and communication for prevention and response
- Implementing food defense security measures is voluntary and presents a challenge for a large portion of industry due to limited resources





# Questions?

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